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ABSTRACT

An introductory overview is presented of current Finnish and American research into secondary school teaching as both a moral and technical endeavor. The described research study sought a comprehensive view of what happens in a student teacher's professional development during teacher education. The following problems were researched: (1) what kind of individual qualities such as personality, attitudes toward teaching, the teaching profession and the teacher's role do secondary school student teachers have and what connections do these qualities have with their professional development; (2) what emotional processes and problems do students have concerning teaching practice and training when engaged in a teacher education program; (3) what cognitive processes does a teacher education program awaken in students and what are students' conceptions about the relevance of the teacher education curriculum to their eventual work as teachers; and (4) what interrelations exist between those three problem areas. (JD)

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IS TEACHING ALSO A MORAL CRAFT FOR SECONDARY SCHOOL TEACHERS ?

- Cognitive and emotional processes of student teachers in professional development during teacher education.

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IS TEACHING ALSO A MORAL CRAFT FOR SECONDARY SCHOOL TEACHERS ?
- Cognitive and emotional processes of student teachers in professional development during teacher education

1. Secondary school teachers - a forgotten educational area

In many countries secondary school teachers have been considered mainly as representatives of the academic subject they teach at school. At least in Finland until recent years, a great distinction has been made between primary and secondary school teachers. The first group, class teachers, teaching children from 7-12 years, have always been considered as professionals whose work demands many pedagogical skills and personal qualities. Another very common assumption has been that primary teachers have a close relationship to pupils and their parents. They also are supposed to make an active impact in cultural questions in their surrounding society. On the other hand secondary teachers (with pupils from 12-18) have had a common reputation of being experts in a subject matter. In their professional qualification the most important factor is the academic discipline and its content. Educational studies and teaching practice form a lesser portion of their education and is much slighter if compared to class teacher education. One stereotypie has been that secondary teachers only instruct cognitive knowledge and primary teachers educate their pupils. This kind of thinking can be met in many European countries. This kind of tradition has also existed in Finland but with the comprehensive school from the seventies, an attempt has been made to change the role of the secondary school teacher (Niemi, 1986; Niemi, 1987a). This big distiction between primary and secondary school teachers seems to be international. Also in the American school system secondary school teachers are characterized as persons for whom a love of content is typical (Lasley & Applegate 1982, p.3).

One indication of the thinking described above has been that teachers' educational programs have been very carefully planned for elementary teachers, but not so much attention has been paid to secondary teacher education programs. In many countries there are only some general educational courses or even nothing for secondary teachers (e.g. Clark, 1986, p.7). Also the research concerning secondary education or secondary school teacher education has been minimal. At least in Finland and the other Scandinavian countries very little research has been done concerning secondary teacher education. This lack seems to be international. Lasley and Applegate write (1982, 5):

> "Little research has been done in secondary school settings. Researchers have spent most of their time and energy studying elementary classrooms"

In the same journal Huling and Hall (1982, 7) write: "Only a handful of journals are devoted solely to secondary education and the extent of research and theory is equally lacking" and Confrey (1982, 13) claims drastically: "Secondary schools probably are not elementary schools grown up; since they serve different purposes and attract teachers of a different sort, they may pose very different problems and require dramatically different models for research and teacher education".

In Finland all teacher education has been centralized in the universities from 1979. Secondary teacher education was also revised and it now contains more pedagogy than earlier. In the departments of education there is a special program for secondary school student teachers. The students study academic disciplines in faculties but at the same time they participate in teacher-education programs in the Department of Education. The pedagogical studies consist of three elements: general educational courses, pedagogy related to spesific school subjects and teaching practice (see Appendix 1 the details of courses). It takes about 5-6 years to become a secondary school teacher.

The new program for secondary school teachers needs evaluation. At this moment those students who started in the beginning of the 1980's have graduated or are finishing their studies. For continuous development of the secondary school teachers' educational programs, research-based knowledge is needed. It means that it is very important to have knowledge about teacher education, not only knowledge for teacher education as Zimpher and Ashburn claimed (1985, p.17). It is important that we have knowledge derived from research on teaching. This knowledge can increase students' understanding e.g. in class management or applying teaching methods. But the knowledge about teacher education and teachers' professional development is also needed.

The problem is, however, that "there is considerable confusion about what constitutes the knowledge base in teacher education" (Zimpher and Ashburn 1985, p. 20). The writers analyzed three different approaches: empirical, phenomenlogical and critical theory. All these have different conceptions of the world and different research traditions. Zimpher and Ashburn have analyzed current trends and found these to focus largely on the empiricist's perspective of the professional development of teachers. According to Koehler (1984, p. 67), the problem is that there are lots of studies, but they don't add up to anything: they are piecemeal and particularistic.

The problems of research focusing on teachers can be seen clearly in the studies concerning the affective characteristics of student teachers. Coulter (1987, pp. 585-598) has summarized the main approaches: The first is the descriptive-comparative research concerning student teachers' values, attitudes and interests. The second centered around student teachers' self-concept and self-esteem. The third describes student teachers' concerns and anxieties and the fourth student teachers' commitment. In his conclusion Coulter(1987, p. 597) makes the criticism that "research is characterized by lack of communication of two kinds. The first concerns research into different aspects of student teacher affect. Research into attitudes, for example, has generally proceeded along its own narrow path with little reference to work in related areas such as self-concept, commitment, or student teachers' concerns. This

isolationism is surprising in the light of quite promising evidence that affective states of student teachers are closely interrelated, and where there is change in one area there is often concomitant change in another." The second shortage according to Coulter is "a lack of communication between researchers in the areas of student teacher and student teacher behavior".

Zimpher and Ashburn (1985, 24) emphasized, instead of focusing entirely on empiristical paradigma "a more useful way to study the process of preparing teachers come from the broader context of multiple conceptions of the world, their philosophical traditions, and a concern for the epistemologigal referents that accompany the study of complex human endeavors".

In this Finnish teacher education research the purpose has been to combine different kinds of traditions and to gain a comprehensive view of student teacher professional development. The aim has been to approach secondary teacher education applying the principles introduced by Soltis (1984, p. 9). His opinion is that both pedagogical and educational research need to be empirical, interpretative and normative. It means that pedagogy as a basic human activity, by its very nature, requires

1. a study of the empirical to give us insight into its causal and correlational dimension
2. a study of the intersubjective and subjective dimension to open up our understanding of the kinds of human meanings exchanged developed and evoked in a pedagogical encounter and
3. a searching exploration of the normative, ideological and ethical dimension of pedagogy as a basic form of human social interaction.

According to Soltis all aspects of education in its broadest sense need study, not only to give us a better understanding of human meaning systems, but also to allow for our collective critical reflection on the desirability of what we do and the conscious development of the most desirable outcomes we can achieve through the human institutions and activities we have constructed, to be educative and not oppresive.

In the Finnish secondary school teacher education research project the aim has been to combine different aspects introduced by Soltis. The steering insight has been that for developing secondary school teacher education we need three kinds of knowledge:

1. We need empirical data to see relations between different aspects of teacher education. Empirical results can open doors to an unknown house. But we stay in the darkness if we can't see what is behind correlations and other empirical results. We have to put the light on. We need interpretations and theoretical constructions.

2. The interpretations and theoretical structures help to us see essential aspects. We have to make an effort to combine empirical results. This demands understanding the contextual qualities. But it also demands a certain view of the human being. We have to accept the fact that human nature is not

mechanical. It is very difficult to reveal clear causal relations. A human being is interactive with his surroundings and most relations are reciprocal. Models and theoretical structures should be flexible and they have to do justice to basic human nature. Even though we can't present any exact calculations about teacher education, it is significant if we can summarize essential aspects about students' development and combine empirical results so that they help us to see the wholeness.

3. We need critical reflection and awareness of values linked with teacher education. Implicitly or explicitly many values are included in study programs. Teacher education can promote authoritarianism or democracy. It can influence the attitudes towards knowledge and its significance in society. A very important thing also is the role of the teacher into which students are being socialized. Also the research of teacher education includes values and these have an influence on the conclusions and recommendations of empirical results.

In the following presentation the values which have directed the research will be analysed first. After that the empirical data will be introduced. Finally interpretation of results and conclusions will be presented.

2. Philosophical and theoretical framework of secondary school teacher education research.

2.1. Teaching as a moral craft

The view of teaching determines what aspects of it will be researched. The teaching concept also directs teacher education. A teacher's behavior can be seen by using behavioristic epistemology as a combination of separate teaching skills or from the humanistic viewpoint as a self-actualization process. There are also many researchers who emphasize progressive educational ideals and see that the most essential factor in teaching is its social nature and how to activate the pupil's inquiring process. In that case the role of the teacher is a democratic leader and a stimulator of interaction processes. It is also possible to see teaching only from the viewpoint of academic disciplines and emphasized sequences and logical structures in teaching contents. Teaching can also be considered from the point of view of a profession and determined as a craft in which esoteric knowledge is transformed from expert to novice.

The problem has been that all these aspects emphasize different sides of teaching. Also the same phenomena can be found in teacher education traditions . The major approaches in western countries have been "Behavioristic", "Personalistic", "Inquiry - Oriented" and "Traditional-Craft" paradigma (Zeichner 1983). The comprehensive approach is lacking and it is also reflected in teacher education. This is a problem also in Finnish teacher education (Puurula, 1983). It would be very important seek how to combine separate paradigma (Joyce 1981, p. 29).

Alan Tom uses the metaphor "a moral craft" to describe teaching. He has linked different aspects of teaching under this new concept. Teaching and teacher education are both moral and technical endeavors. These dimensions must not be separate in practice. A teacher needs many technical professional skills but he must also be aware of his moral responsibility. Teachers should see themselves as moral agents of society, people who are responsible for transmitting social values (Tom, 1985). A teacher should have a reflective approach to his work.

Speaking about teaching as a moral craft, Tom (1984, p. 11) means that teaching "is not only a dynamic activity, but it is also a comprehensive term. Although some researchers see teaching as merely the most efficient means to reach specified ends, teaching in reality is a much more complex activity. Teaching involves a subtle moral relationship between teacher and student, an attempt to bring important content to the awareness of a student and the ability to analyze situations and to use instructional skills appropriate to these situations". Alan R. Tom expresses that teaching is a moral craft (Tom, 1984)

Tom states that teaching is a moral craft in at least two senses. On the one hand the unequal power relationship between teacher and student makes this an inherently moral relationship, while on the other hand teaching presupposes that something worthwhile is to be taught (Tom, 1984, 76). The teacher as a curriculum planner selects certain objectives or pieces of content instead of others; this selective process either explicitly or implicitly reflects a conception of desirable ends (Tom 1984, 78). Teaching is an intentional or goal-directed activity, which has as its aim that the student ultimately develops in certain desirable directions. The teacher has a moral responsibility for students' intellectual and social development. When teaching students or planning the curriculum the teacher makes many choices. He selects certain objectives, chooses certain materials and applies a range of different kinds of teaching methods. Selective processes reflect a concept of a desirable end. The teacher's work always includes value dimensions concerning both the interaction with pupils and the objectives that pupils are expected to learn.

Alan Tom criticized existing research concerning teaching. Teacher effectiveness approach in particular is based on faulty assumptions of the nature of teaching. These assumptions are (Tom, 1984, p. 54):

1. The belief that there is a direct tie between teaching behavior and student learning and that this link represents a one-way flow of influence : from teacher to student.
2. The belief that teaching is a natural phenomenon whose stability makes possible the identification of enduring regularities whose "givenness" justifies removing from educational inquiry human purposes which underlie teaching behavior
3. The impilicit belief that for the technical dimension of any instructional problem there exists a "one best solution".

According to Tom teaching is not only a combination of technical skills. Teaching skills are necessary conditions in the instructional process but they are not sufficent conditions.

What the nature of teaching also demands of the teacher is an awareness of values and the capacity to encounter students and their situational life context.

Alan Tom's conception of teaching as a moral craft has been used as a theoretical and philosophical basis for the Finnish secondary teacher education project. It has given guidelines for the research design. It has also directed the choice of problem areas empirically measured.

2.2. Implications of " a moral craft" -concept for secondary school teacher and teacher education research

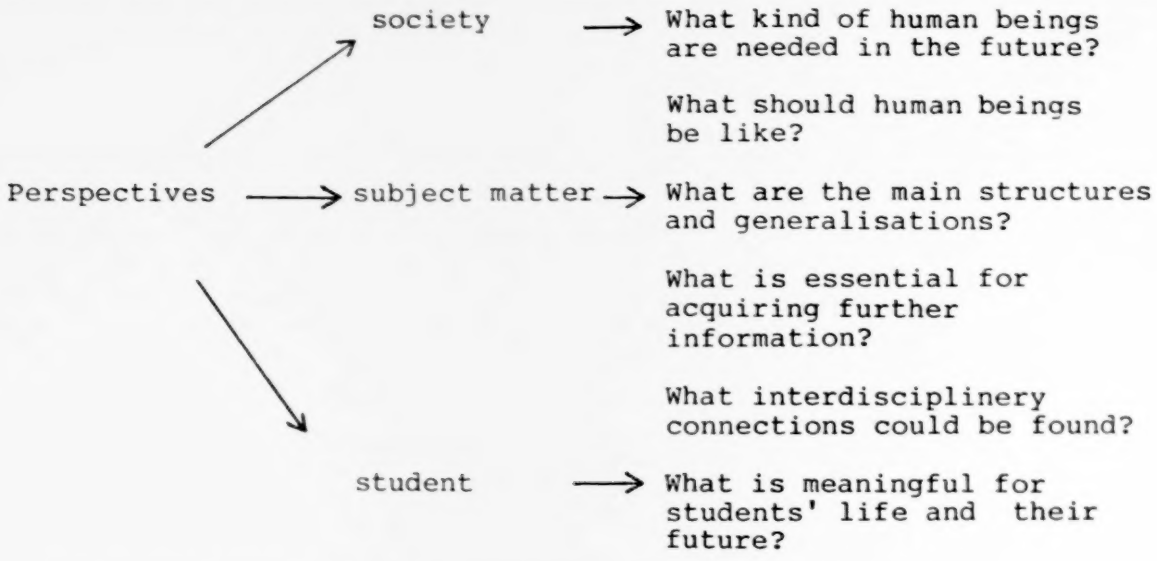
2.2.1. The meaning of broad perspectives in the teaching profession

Secondary school teachers have often been blamed that they see only their own academic discipline. They love the content of their subject matter. In many countries the secondary teacher education tradition has been only preparation in the content for teaching. Lashley and Applegate (1982, p. 4) criticize this kind of approach and argue that knowledge of content is no longer sufficent preparation for teaching it. They refer to demands presented by Howsam et al. in 1976 (p. 85) that teacher educators need to promote the understanding of how a subject matter can be useful to students in discovering personal levels of meaning into humane daily action. This same idea is also presented in the new analysis of teacher education. Howsam et al. also stated in 1985, (pp. 85-86) that the preparation of teachers requires a mastery of subject matter which is a human-service function. The aim is to help students to find personal meanings. If that would be possible, it would be of critical importance to the subject matter preparation of teachers that attention should be paid to the broad principles and generalizations of a subject, rather than concentration on a maze of specific topics.

This kind of approach is a big challenge to teacher education. Teachers should consider themselves as active agents in directing students' holistic development. They are not only transmitters of some cognitive content. They should also see how important agents they are in forming the future of society. Teachers need perspectives in relation to society, subject matter and student development. They also need to understand the interconnections between these dimensions.

Teachers should see their own subject matter from the viewpoint of the comprehensive aims of the secondary school. In Finland the aims of the secondary school includes many broad objectives of personality development, (e.g.) students should develop into initiative-taking, responsible, creative, peace-loving, mentally balanced individuals. Even if the teacher instructs only in one or two subjects, he should have a holistic view of the world and pupils' development. Also, he needs an understanding of what connections his subject matter may have on other subjects and everyday life.

Figure 1. The broad perspectives in the teaching profession


society
What kind of human beings are needed in the future?
What should human beings be like?
Perspectives
subject matter
What are the main structures and generalisations?
What is essential for acquiring further information?
What interdisciplinery connections could be found?
student
What is meaningful for students' life and their future?

New secondary teacher education courses in Finland have to be planned so that it would be possible to achieve these kinds of objectives. However the criticism has been made that teachers' education is still guiding secondary school students for preparing a single and separate lessons. Too little attention has been paid to the broader perspectives of teachers' work. It is very important to analyse what the nature of the secondary school teachers' work is in modern society and what new challenges will arise for teacher education at the secondary level.

2) How to promote pupil's meaningful learning

What makes learning meaningful can be reflected on from different viewpoints. The one approach is to seek for ways to make the subject matter meaningful for a learner. This kind of meaningfulness Soltis (1984, p.8) describes in the following way:

> "The meaningful subject matter that the teacher teaches becomes the "text" that the student needs to interpret and understand. The student must reconstitute the meaning of the text not only with regard to his or her own subjective sense of meaningfulness but also with an acceptable degree of intersubjectively shared meaning with the teacher and the subject matter community the teacher and the text represent."

But Soltis (1984, p.8) also see dangers if meaningfulness is only considered from the view of the subject matter. He claims

> "We can, do, and must teach skills and arts, attitudes and values, and appreciations. Our formal institutional concept of pedagogy suffers if we forget or omit such basic things that ordinary pedagogy includes".

Soltis emphasizes the importance of phenomenological perspective in the learning process. The subjective experience is

an important part of that process.

If the phenomenological approach is stressed at least two essential questions should be asked. The one is what is a source of motivation in pupils' learning processes and the other is how to help pupils with learning difficulties. In answering those questions from the viewpoint of the new cognitive psychology and using the phenomenological approach, we have to see that learning is an active process which cannot be explained only by external stimulus. What is happening inside the learner is very important.

What is emotionally experienced as relevant can have a great influence on the learning process. Learning concerns the whole personality. Soltis gives examples of these kinds of experinces:"The learner has felt and seeks again the good feeling of the mastery and understanding of a skill, or the consumatory experience of insight, appreciation, and understanding of ideas, or the thrill of discovering something not known before, or the feeling of accomplishment that comes with making sense of the world (Soltis, 1984, p. 8)".

As Soltis points out, learning is both a cognitive and an emotional process. This wholeness should be taken into account when tutoring learning. But even broader perspectives can be found. Meaningfulness can also be reflected in the perspective of a pupil's conception of life and a human being. Experiences at school have many connections with the whole life situation of the pupil.

In Finnish research (Niemi, 1987 b) the meaning of life among secondary school pupils was investigated. One aim was to reveal what connection exist between the experiences of one's own life's meaningfulness and the school experiences. The theoretical framework was Viktor E. Frankl's existentialistic theory of meaningfulness (Frankl, 1969; Frankl, 1978). Frankl argues very strongly that a human being should seek for the meaning and purpose of his own life. If a human being can see life as a challenging task which demands that each one of us fulfills our responsiblities, his life will be meaningful. The attitude to the life and to the significance and singularity of one's own existence will be a great source of motivation. Attitudes and values make us to exert an effort and struggle over difficulties.

The results of this Finnish secondary school reserch gives complete support to Frankl's theory. If a human being has discovered the meaning of his life, he has a greater capacity to face his life's challenges. If pupils have discovered the meaning of their life, they also have more positive experiences of school than those pupils who have not found their life's meaning. Pupils who felt that their life was very valuable and have many important duties have less negative feelings toward school and more positive experiences at school. Because the results vere based on correlational analysis it is also possible to interpret that those pupils who have many good and only a few negative experiences at school have better opportunities to feel their life is meaningful. Surely there are circles between those different aspects. But it also points out that school is not a separate area in a pupil's life. It is connected with his whole life's meaning (Niemi, 1987, 51-55)

It may have very long range consequences for pupils' whole life if studying at school can help them to understand their own life's meaning. It may be one step towards their understanding

that they are subjects of life not only objects of external stimulus.

Analyzing what makes learning meaningful is very important also in connection with learning difficulties. A learner's conception of himself, his self-confidence and self-esteem are reflected in the way he meets new tasks. Pupils are different. Some pupils have a capacity to receive new tasks as stimulating and challenging tasks. Their orientation in learning situations is very relevant. But some secondary school pupils can be self-defensive, experiencing most learning situations as very threatening. These pupils require the teacher's special attention. Their self-defensive behavior can take on many harmful forms in classrooms. They making noises, they interrupt teaching, they have aggressive reactions or some of them can also become apathetic and depressed. Many secondary teachers complain that teaching at secondary school is too heavy. Pupils are teenagers and they have many problems concerning their identity. Many disturbances that appear in classrooms are consequences of learning difficulties and self-defensive behavior.

Cognitive and affective qualities in the learning process are tied in many ways with each others. Sometimes cognitive structures can make sense in the affective domain, and sometimes the cognitive task may be a threat to the whole personality. On the other hand affective factors, like attitudes and values can prohibit learning but also make it very meaningful.

In developing the school, the questions should be asked as to how the school can help different kinds of pupils feel that life could be meaningful and that their personal life has meaning. This concerns the whole of school life: the contents of subjects, teaching methods and materials, human relationships at school and the emotional climate of school. Secondary school teachers can no longer be only distributors of knowledge. They are also co-workers with pupils, and also their personal qualities are important. What human relationships are like and what the emotional climate is at school are facts which have to be taken seriously in the school's inner development. It demands of teachers precisely those qualities that Tom includes in the concept of "a moral craft".

3) How to anticipate the future

Many researchers in the area of futures research have reflected on the interrelationship between education and societal change. Educational practices and institutions have been both criticized for their lack of attention to the needs of tomorrow's learners, and given credit for having the most potential of any institution to become viable agents of social change (Tafel, 1984, p. 6). Criticism has been made of educational institutions and their approaches to learning on the following grounds: First, traditional methods of education tend to produce individuals who are psychologically ill-equipped to cope with a society undergoing continual rapid change. Second, the content of the traditional curriculum is designed to fit the student into the existing society (Kauffman, 1976, pp. 8-9). Secondary school teachers in particula have been criticized very strongly. It has been argued that secondary school teachers resist all renewels and they do not prepare their students either for changing and new situations or for the reality of today (Huling & Hall 1982,

p. 7; Confrey, 1982, p. 10). According to Gerald Cortis "the paramount task in this present day is for educators to focus on the future by asking basic questions about status quo. So many of our schools still face backwards towards a dying system, rather than towards the emergent future" (Cortis, 1981, p. 154). Linda Tafel (1984, p. 6) summarized the task of school and teacher education very sharply:

> "Futures researchers agree on the need to examine educational institutions and programs and to plan and implement change. Of primary concern must be the preparation of educational professionals who anticipate a wider context for application of skills, knowledge, attitudes and values they have learned."

Teacher education should be relevant with the implications of the moral craft presented above. It means especially that student teachers' own inquiring process includes those qualities typical of meaningful learning. Their own cognitive processes should be intentional and stimulate broad perspectives in a teacher's work. They should be ready for changing conditions and the future's challenges.

But it is not enough that a teacher has ideals and broad perspectives. He also needs to feel that he can manage the professional skills. He must be sufficiently sure that he can promote his view of education. That means also that even a young teacher should have self-confidence in the techers's whole task area. If he is at the "survival stage" all the time as professional (Lortie, 1975, 161; Pickle, 1985), he can't develop his work in a personal way and find his own way to do it.

If teaching is assumed to be a moral craft this has certain consequences for teacher education. The education of teachers should help student teachers to develop into responsible craftsmen who manage many technical skills in teaching but who also have a readiness to reflect upon moral concerns implicit in the teacher-student relationship and in curriculum planning and to direct their teaching behavior in accordance with their reflections. To achieve these aims the teacher education curriculum should develop high level cognitive processes in students. These processes should include perspectives which connect theoretical and practical studies with students' own behavior. Students should also understand the meaning of their studies in a wide context and see how important a role secondary school teachers have for the pupil's future and the whole of society. New teachers should develop into autonomous, reflective and initiative-taking craftsmen who are aware of their responsibilities.

3. Design of research

3.1. Main problem areas

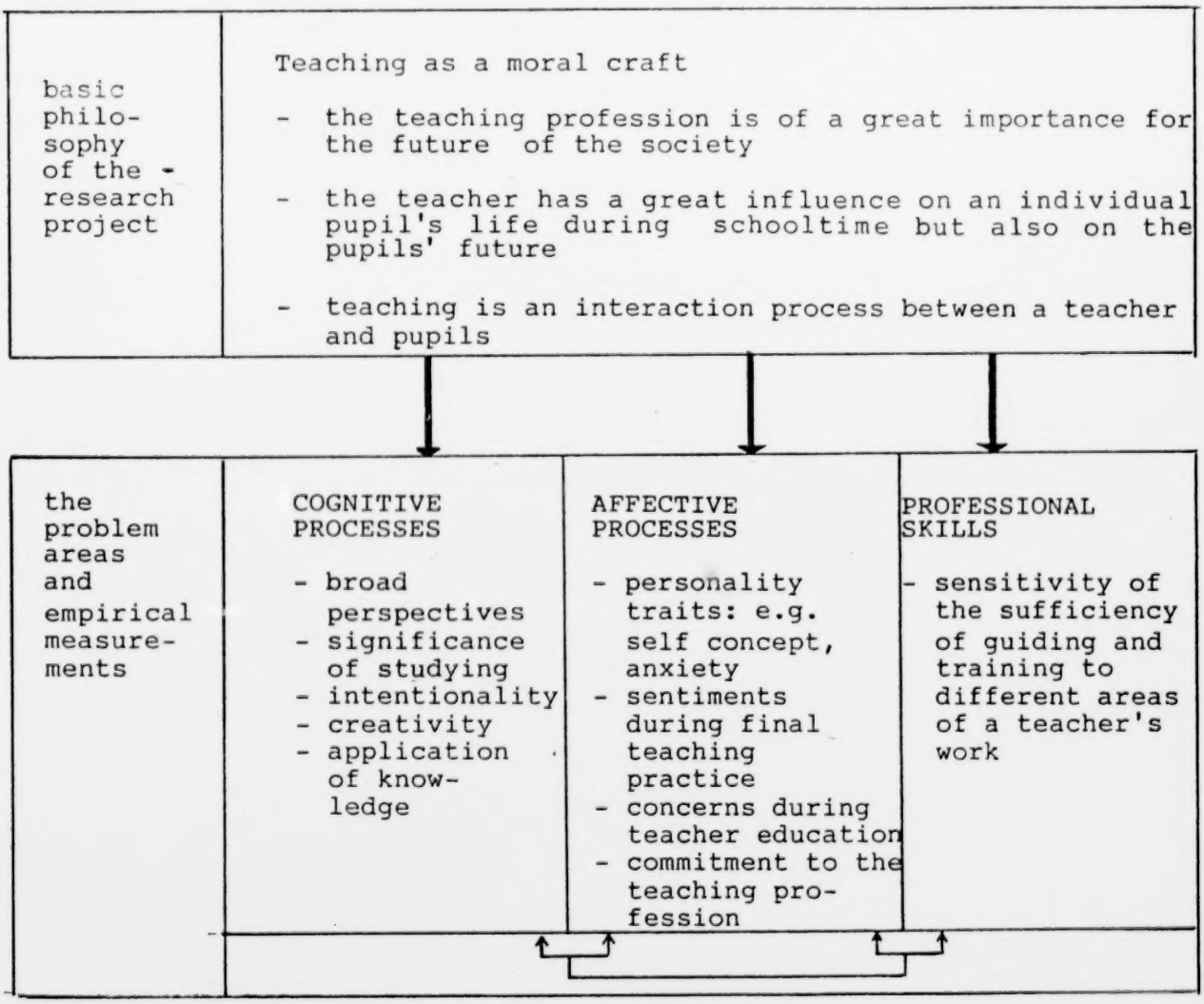
When starting the research project of secondary school student teachers the aim was to get a comprehensive view of what happens in a student teacher's professional development during teacher education.

The following problem areas were set for the research: (1) what kind of individual qualities such as personality, attitudes to teaching, the teaching profession and the teacher's role do secondary school student teachers have and what connections do these qualities have with their professional development, (2) what emotional processes and problems do students have concerning teaching practice and training when engaged in a teacher education program (3) what cognitive processes does a teacher education program awaken in students and what are students' conceptions about the relevance of the teacher education curriculum to their eventual work as teachers. Also it has been a very important aim to seek (4) what interrelations exist between those three problem areas.

3.2. Variables in measurements of the research

When selecting variables in the research the very central viewpoint has been to find hypothesized preconditions for becoming a moral craftsmen as a teacher.

Figure 2. Variables in the secondary teacher education research


basic philosophy of the research project
Teaching as a moral craft
- the teaching profession is of a great importance for the future of the society
- the teacher has a great influence on an individual pupil's life during schooltime but also on the pupils' future
- teaching is an interaction process between a teacher and pupils
the problem areas and empirical measurements
COGNITIVE PROCESSES
- broad perspectives
- significance of studying
- intentionality
- creativity
- application of knowledge
AFFECTIVE PROCESSES
- personality traits: e.g. self concept, anxiety
- sentiments during final teaching practice
- concerns during teacher education
- commitment to the teaching profession
PROFESSIONAL SKILLS
- sensitivity of the sufficiency of guiding and training to different areas of a teacher's work

The secondary school teacher education project was carried out by survey. Information was gathered through questionnaires. The main tests were:

COGNITIVE PROCESSES:

If a teacher's responsibility is to teach pupils at school the inquiry process and to apply knowledge, they should also themselves have experiences of that kind of studying. Teacher education should be a process which directs student teachers towards deep learning processes, which also have wide perspectives. That is why cognitive processes were measured by scales which were constructed with statements characteristic of meaningful and high level learning processes e.g. intentionality, creativity, the ability to apply information to new situations, the capacity to form large theoretical perspectives and the ability to integrate new information with earlier experiences (e.g. Bigge, 1982; Biggs & Collis 1982; Bruner, 1966; Marton et

al., 1977). Students evaluated how different elements in the teacher education program had stimulated high level processes. The questionnaire also contained open-ended questions and students could write down their thoughts about the relevance of the teacher education program and the meaningfulness of its content and methods.

PROFESSIONAL SKILLS

The intention was to get information about the students' conception of the sufficiency of guidance and training for the teacher's different task areas. Professional task schedules consisted of tasks which teachers encounter in classrooms. There were also questions about teachers' duties outside the classroom. Many questions concerned the teacher's relationship with pupils. A teacher should have enough self-confidence in fulfilling his duty as a teacher. That means that he should have education and training in all the areas of teaching tasks of secondary school teachers. The spectrum is wide. It is not enough only to manage the content of teaching. Secondary school teachers must also have the capacity to manage their personal relations with pupils. Many pupils have emotional problems and they require special attention. The questionnaire consists of 36 different teachers' duties and students had to evaluate how sufficient they had felt the training had been for those tasks. This questionnaire was constructed by the author.

AFFECTIVE PROCESSES

a. Personality traits

Measurements of personality and emotional processes were based on Cattell's personality theory and his analysis of the adjustment process (Cattell & Scheier, 1961, pp. 306-307, Cattell & Child, 1975, pp. 59-60). Personality traits were measured by the questionnaire consisting of adjective opposites. The same test construed by the author of this paper had also been used in earlier research (Niemi,1985 ; Puurula 1986). Reliability coefficients of the extracted five personality dimensions had been very high varying from .81 to .89 (Niemi, 1985, pp.79-80; Puurula, 1985 p. 94).

The personality traits and their reliability coefficients of this teacher education research are presented in the following list:

1. Anxiety vs. Integration (α = .73)
   - resembling Cattell's dimensions Q4 + O and secondorder factor FQII

2. Traditionalism vs. Originality (α = .78)
   - resembling Cattell's dimensions Q1 + M

3. Ego weakness vs. Ego strength (α = .89)
   - resembling Cattell's dimensions Q3+ E + C

4. Introversion vs. Ekstroversion (α = .81)
   - resembling Cattell's dimensions H + A + I and second order factor FQI

5. Unconscientious vs. Conscientious (α = .73)
   - resembling Cattell's demensions Q3 + G

b. Emotional sentiments

The sentiments were measured with a test consisting of different emotional states. The aim was to gain information about what kind of emotional processes the final teacher education period awakens in students. The emotional states were also based on Cattell's emotional adaption process -theory (Cattell & Scheier, 1961, pp. 306-307; Cattell & Child, 1975, pp. 59-60). When a person meets challenging tasks he has many different ways to react to those situations. The sentiments can vary from great enthusiasm and hope to deep despair and disgust. There were 30 different statements by which students evaluated introspectively their own behavior. Following a correlational analysis, sentiments were factorized. This test was also used in earlier research (Niemi, 1985, pp. 84-85). Three clear dimensions appeared earlier as well as now in this research:

I Psychosomatic anxiety consisting of somatic symptoms (α=.82)

II Mental anxiety consisting of anxiety states (α= .81)

II Pleasure and satisfaction consisting of emotional states which describe feelings of e.g. courage, enthusiasm and pleasure (α =. 84)

c. Concerns during teacher education

It was also the aim to get feedback on how much different aspects of teachers education had caused concerns and problems. Some questions dealt with the structure and content of the schooling, some questions aimed to gather information about the problems of socialization to the teaching profession (e.g. growing into the role of a teacher)

d. Commitment to the teaching profession

Commitment was measured with questions concerning students willingness to select the teacher education program in the beginning of their academic studies and their willingness to take a teaching job after graduation.

3.3. Gathering the empirical data

The empirical data was gathered in 1985. The new teacher education program began at the University of Helsinki in 1979. Students (N=79) were measured at the end of their studies.

In the statistical analysis mainly means, percentages and correlations were used. Factor analysis was applied for personality measurements. The open-ended questions were analysed qualitatively.

4. Results of the research

This paper mainly presents the interrelations between different problem areas. There is much interesting information in the results of each problem area. Of these research areas only the most essential results will be presented. The research design provides the possibility to seek broader viewpoints and synthesis and the intention is to concentrate on summarizing intercorrelations.

4.1. The main results of the student teachers' cognitive processes

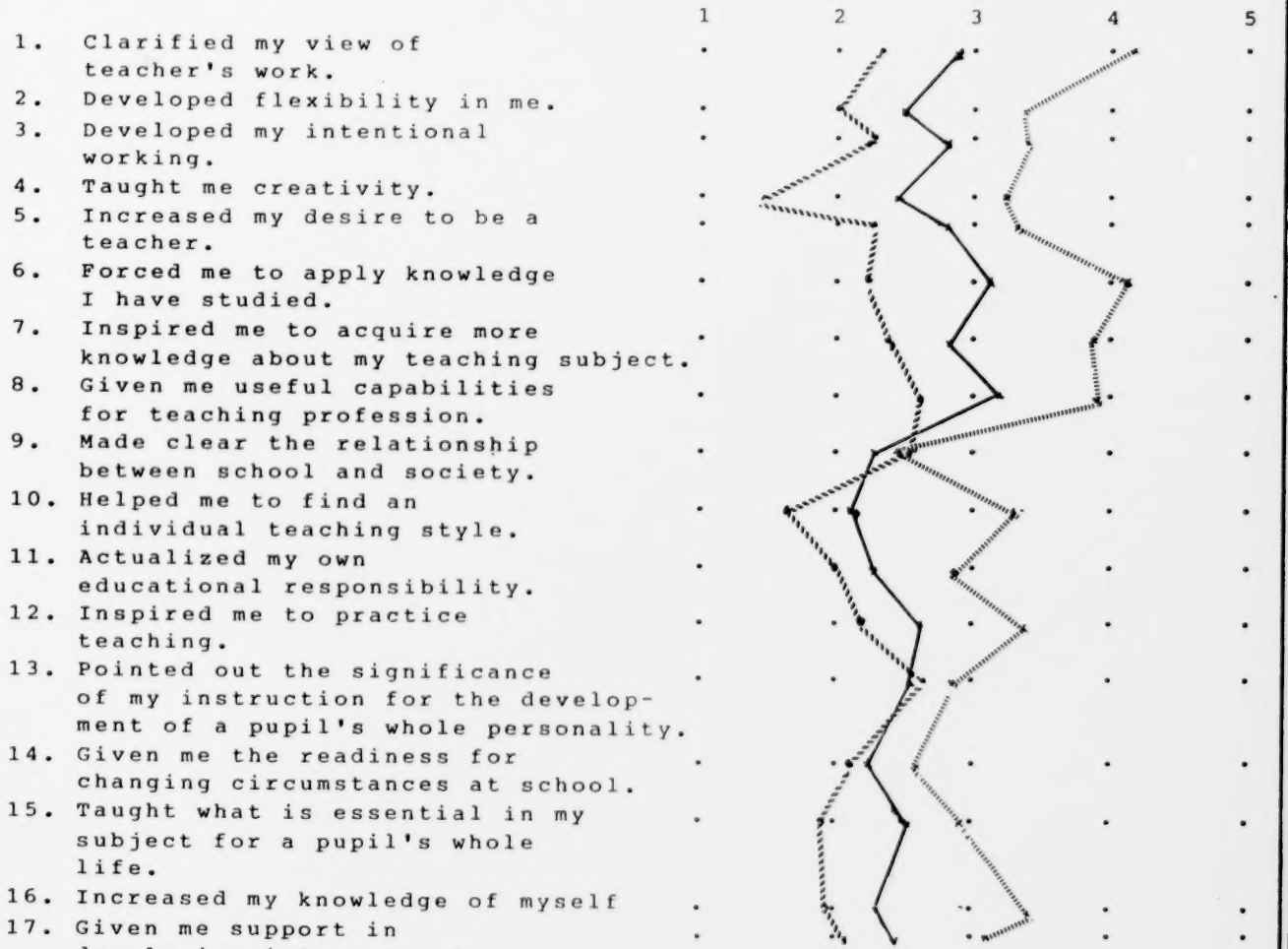
The main results of the student teachers' cognitive processes are described in the following figures.

Figure 3. Student teachers' evaluations of the kinds of cognitive processes different elements of the teacher education program have stimulated in their development.

"In the following you are asked to assess the significance of different kind of studies for you."

1 = very little
2 = little
3 = to some extent
4 = much
5= very much

General pedagogy ·····
Pedagogics related to school subjects ———
Teaching practice ·····


1
2
3
4
5
1. Clarified my view of teacher's work.
2. Developed flexibility in me.
3. Developed my intentional working.
4. Taught me creativity.
5. Increased my desire to be a teacher.
6. Forced me to apply knowledge I have studied.
7. Inspired me to acquire more knowledge about my teaching subject.
8. Given me useful capabilities for teaching profession.
9. Made clear the relationship between school and society.
10. Helped me to find an individual teaching style.
11. Actualized my own educational responsibility.
12. Inspired me to practice teaching.
13. Pointed out the significance of my instruction for the development of a pupil's whole personality.
14. Given me the readiness for changing circumstances at school.
15. Taught what is essential in my subject for a pupil's whole life.
16. Increased my knowledge of myself
17. Given me support in developing into a teacher

(see Appendix 2)

The information of the figure is very clear.

Teaching practice has been most significant in their development into teachers.

Pedagogics related to school subjects have been the second most important aspect.

The least important has been general pedagogy. In open-ended questions students presented comments about general pedagogy: too abstract, too separate, at a too early stage, too low requirements in examinations.

The problem is that students' own cognitive processes seemed to remain on a very low level. Only teaching practice stimulated learning processes which are considered by student teachers to be meaningful and relevant. Students thought that the educational foundation courses were least relevant, considering them to be too separate from the teaching profession. Students did not see the courses' relevance to their own personal development. However, courses related closely to the pedagogics of school subjects were appreciated and they produced high level processes. If general educational theory remains irrelevant to students' learning process, there are many dangers. The worst possibility is that students do not become aware of their role as moral craftsmen and do not learn to integrate psychological, philosophical and sociological knowledge in their own teaching.

The results are amazing because the general pedagogics were planned specifically to fit the needs of teachers and lectures and literature also include these broad perspectives in the secondary school teachers' work. However, it seems that student teachers cannot see the courses' singificance. Contact with the real school situations is lacking. A very important agent in transmitting the greater educational perspectives is the pedagogy related to a subject matter. Secondary student teachers are very interested in their subject. It motivates students if they can reflect on educational matters from the viewpoint of the subject. It is easier to combine educational knowledge about pupils' learning processes, teaching methods and other necessary information for the teacher if the starting point is a concrete school subject rather than if educational topics are lectured on a very general level. The significance of the connection to real school situations can be seen very sharply in how important the teaching practice is for students.

4.2. The main results concerninig professional skills

The results of the evaluations of how sufficiently students have received guidance and training for teachers' different tasks can be seen in Figure 4.

Figure 4. "How sufficient is guidance and training for teachers' professional tasks?"

1 = much too much
2 = somewhat too much
3 = sufficiently
4 = somewhat too little
5 = much too little

	1	2	3	4	5	x
1. a pupil interrupting instruction						3.87
2. problems to motivate a class						3.69
3. methods to get pupils to master what is being taught						3.51
4. assessing pupils's initial level						3.77
5. pupils' individual tutoring						3.81
6. pupils neglect their duties						4.04
7. defiance of pupils						3.85
8. understanding pupils' emotional reactions						3.78
9. choosing many-sided teaching methods						3.15
10. assessing time during a lesson						3.37
11. preparing a lesson						3.08
12. planning the work of a school year						3.84
13. planning with pupils						4.05
14. supervising during recess						4.26
15. punishments						4.25
16. disorders caused by the whole class						3.93
17. disorders caused by an individual pupil						3.89
18. disagreements between pupils						4.19
19. helping a discriminated pupil						4.08
20. helping an aggressive pupil						4.19
21. meeting parents of a pupil						4.38
22. taking into account opinions of fellow teachers						3.86
23. illustrate the teaching subject						3.00
24. using audio-visual equipment						2.96
25. using language comprehensible to pupils						3.20
26. managing teaching matter						3.11
27. creating reliable interaction with pupils						3.42
28. finding differentiation solutions						3.91
29. assessment of pupils' products						3.42
30. receiving feed back from pupils						3.74
31. finding a lively and inspiring delivery						3.77
32. pupils' accidents and misadventures						4.38
33. writing down pupils' absences and other reporting						4.18
34. holding morning assemblies						3.88

Secondary school student teachers consider tasks connected with human relations at school to be the most difficult of the teaching profession. How to help pupils who have emotional problems, how to support a pupil's individual learning process, how to plan with pupils are all very difficult duties. In the students' opinion training for these tasks is not sufficient. Student teachers would need more education in areas which concern the relationship between the pupil and the teacher. In addition, planning the curriculum and contact with parents were areas in which students should have more training. It seems that it is relatively easy to learn technical teaching skills but it is difficult to find solutions to questions dealing with human relations at school.

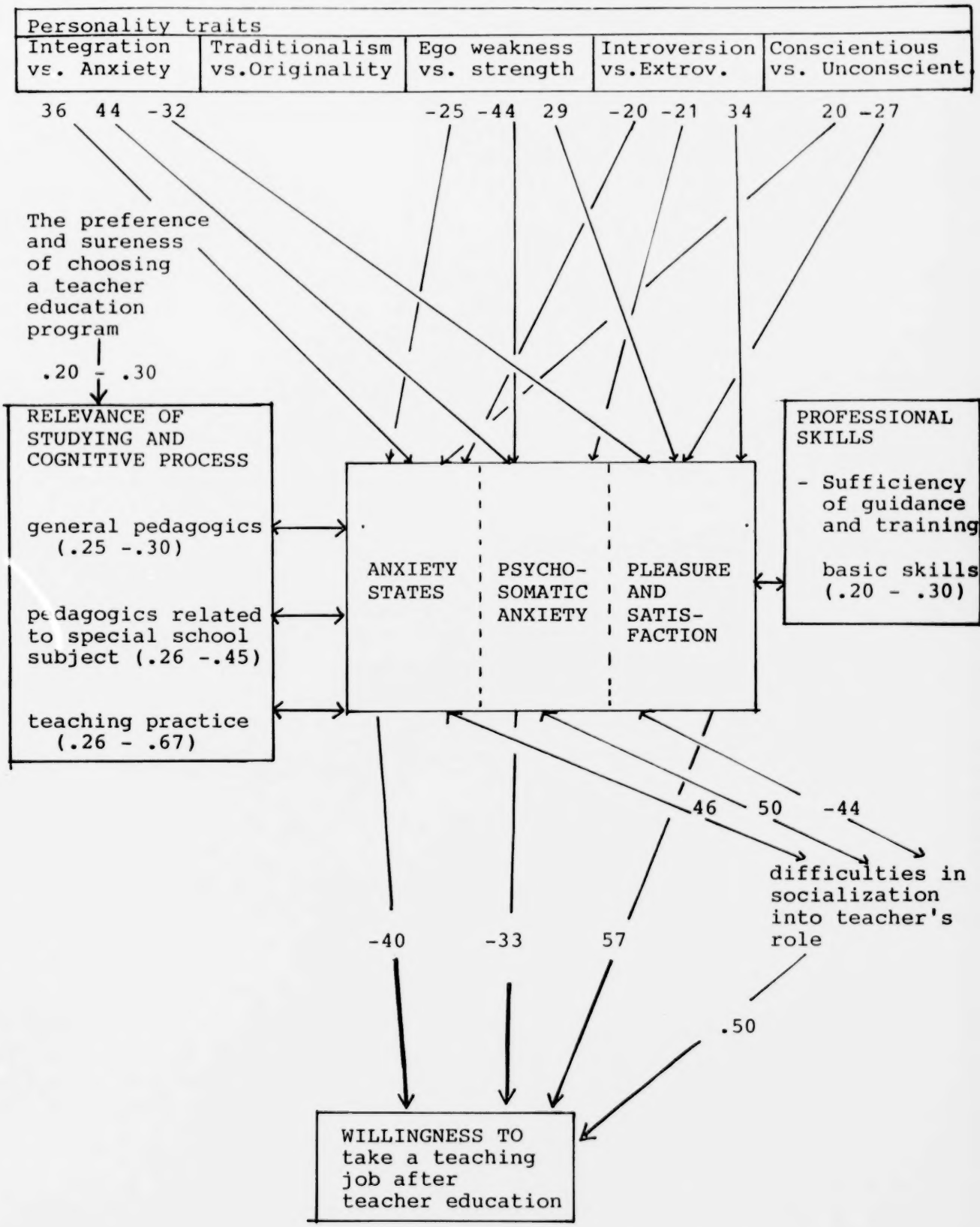
Student teachers would need more education which supports their individual professional development as teachers who will take care of pupils' intellectual as well as socio-emotional growth. The means should be sought by which secondary school teachers could make pupils's learning meaningful.

There are many tasks that teachers do in their everyday work but to which very little attention is given during the teacher education program. Some of them are duties which also require the continuous development of prospective teachers. One may be pose the question of whether it is possible to teach them at all during preservice education. Students, however, spend at least two years in the Finnish teacher education program, though usually four years concurrent with their academic studies. At that time they have four different kinds of practice periods. The purpose is that each practice period would provide some new aspects of teachers' work. In that sense there would be structural conditions for teaching also those aspects now neglected. But as we can see later on, when the results of interrelations between research problems areas will be introduced, the teaching of those difficult task areas in the teacher education program will include ambivalent features.

4.4.Intercorrelations between research problem areas

Statistically significant correlations have been gathered in Figure 5. (N= 79). The following main streams can be found.

Figure 5. Correlations between main reseach problems.


Personality traits
Integration vs. Anxiety
Traditionalism vs.Originality
Ego weakness vs. strength
Introversion vs.Extrov.
Conscientious vs. Unconscient.
36 44 -32
-25 -44 29 -20 -21 34 20 -27
The preference and sureness of choosing a teacher education program
.20 - .30
RELEVANCE OF STUDYING AND COGNITIVE PROCESS
general pedagogics (.25 -.30)
pedagogics related to special school subject (.26 -.45)
teaching practice (.26 - .67)
ANXIETY STATES
PSYCHO-SOMATIC ANXIETY
PLEASURE AND SATIS-FACTION
PROFESSIONAL SKILLS
- Sufficiency of guidance and training
basic skills (.20 - .30)
46 50 -44
difficulties in socialization into teacher's role
-40 -33 57
.50
WILLINGNESS TO take a teaching job after teacher education

I Connections with personality traits

Personality traits had correlations with many variables in the research but they were at a moderate level (about .20 - .30). The clearest relations they had, however, was with emotional sensitivities, which students had experienced during the last period of their teacher education. This is very remarkable because specifically sensitivity dimensions: I Anxiety states, II Psychosomatic symptoms, and III Pleasure and satisfaction, appeared to have a very central position in the whole cognitive-affective developmental process. Especially the personality traits: Anxiety vs. Integration, Ego weakness vs. strength, and Introversion vs. Extroversion had clear connections with sensitivity dimensions.

If students have high ego strength and they are integrative and extroverts in their personality traits, they also experience more satisfaction and pleasure and less anxiety and psychosomatic symptoms than students who have low ego strength and who are introverts and anxious in the trait level of personality. This may be due to the fact that personality traits are important factors but it is very difficult to get very high coefficients because traits are measured on a very general level. Sensitivities are related to some concrete situation or phemonena. It provides a greater chance to also get the more remarkable correlations.

II Connections with sensitivity dimensions

The dimensions I Anxiety states, II Psychosomatic symptoms and III Pleasure and satisfaction had very high correlations to commitment to the teaching profession, to problems of socialization into the teacher's role and to become a teacher after graduation. They also had a correlative relationship to cognitive processes and professional skills.

The more students have a feeling of pleasure and satisfaction in their last practice period, the less they have difficulties in the socialization into the teacher's role. Correlations do not express what is a cause and what is an effect. It could also be interpreted that the more difficulties students have in socialization into the teacher's role, the more anxious they are and the more psychosomatic symptoms they have like headaches, tiredness, solemness and so on. It is probably that students who have great problems in adapting to the teacher's role, experience the last teacher education period as very stressful. But if students could have a more positive experience during that period, it may also help students to see the teacher's role more positively.

The sensitivity dimensions have also a very clear correlative relation to the willingness to take a teaching job after graduation. The more students have felt pleasure, the more eager they are to become a teacher after schooling.

The emotionaly experiences during teacher education hold a very central position. But how could teacher education develop more positive feelings among students? The correlations between emotional sensitivities and cognitive processes and professonional skills could give some ideas.

III Connections with cognitive processes

The more students had learning experiences which could be described as a deep cognitive process including broad perspectives, the more pleased and satisfied they were. If students could find relations between theory and practice, they also had more positive sensitivities. The high level cognitive processes had also a very clear connection to the willingness to take a teaching job. If students had high level cognitive processes, they also wanted to be a teacher after graduation. Of course the relation is reciprocal. If students are very commited to the teaching profession, they also can gain more for themselves from their studies. Students who have no commitment to the teaching profession remain on a superficial level in their studies.

Means should be sought by which the congnitive process could be deeper and wider. Students themselves expressed in the open ended questions that they need more support for indivuald goal setting, more encouragement for new methods in teaching, more attention to linking theory with practice and more critical reflection.

David Hunt (1971) has emphazised the meaning of conceptual level of the teacher. Burden (1986, p. 190) has summarized main results concerning teachers' conceptual level. Teachers who were assessed at more advanced (in terms of their conceptual level) developmental stages were more effective as classroom teachers. They functioned in the classroom at a more complex level. They were more adaptive in their teaching style, more flexible, and more tolerant. These teachers also were more response to individual differences and used a variety of teaching models such as lectures, small group discussions, inquiry, and role playing. These teachers also were more empathetic and they provided a wide and varied learning environment for their students. Furthermore, teachers at higher stages may be able to assume multiple perspectives and use a wide variety of coping behaviors.

Sprinthall and Theis-Sprinthall (1980, 1983a, 1983b) have examined how adult development theory could be used to help prepare for new roles as teachers. While recognizing the relationship between higher conceptual levels and effecctive teaching performance, they have asserted that a theoretical framework must be established for educating teachers for continued cognitive development, and that consideration must be given in the training model for the teachers as an adult learner. They emphazise that training programs should focus on the teacher's cognitive development. A central goal of this kind of training is to promote psychological maturity. Developmentally mature humans can perform the requisite complex tasks of adulthood.

The teacher education program for secondary school teachers should promote psychological growth in terms of increased cognitive complexity and make an attemp to deepen cognitive processes of student teachers.

III Connections with professional skills

The sufficiency of guidance and training to the teacher's whole task area had two types of correlations. Some task areas had positive correlations and some negative. If students feel that they have got sufficient or even a little bit too much guidance in a teacher's basic skills e.g. motivating pupils, understanding pupils' emotional behavior, using AV - equipment, they also feel pleasure and satisfaction and are not anxious. Nor do they have psychosomatic symptoms. It means that giving a good basis for basic skills management adds to students' positive emotional experiences.

The astonishing results are those correlations that indicate that if students felt they had received sufficient or even too much guidance in certain task areas, they had become anxious and their pleasure had diminished. These kinds of tasks are e.g planning with students, helping an aggressive pupil, pupils neglect their duties, meeting parents of a pupil. These were specifically those task areas in which the mean values of evaluations of how sufficient the guidance had been showed that, in general, students felt they had too little guidance. Maybe these teachers' tasks are so difficult and controversial that they awaken anxiety in young students. They are not traditional secondary school teacher duties and it may be that the teacher educator may handle these in a way that makes students anxious and makes them afraid of these duties. There are results from students who are making their choice whether or not to select the teacehr education program, that they are afraid of the secondary school teachers' role. They feel that the role demands too many qualities of an educator. They are afraid that they cannot fulfill that ideal (Perho 1985).

It is obvious that the role of a secondary school teacher is very problematic. It would demand the special attention of teacher educators (Griffin, 1986, 252-257). How to help students to socialize into the role so that they wouldn't become horrified. It would be very important that educators were able to apply the knowledge available of the stages in professional development (Burden, 1986; McNergney & Carrier, 1981). It shows that students are in different situations depending on their earlier experiences of teaching.

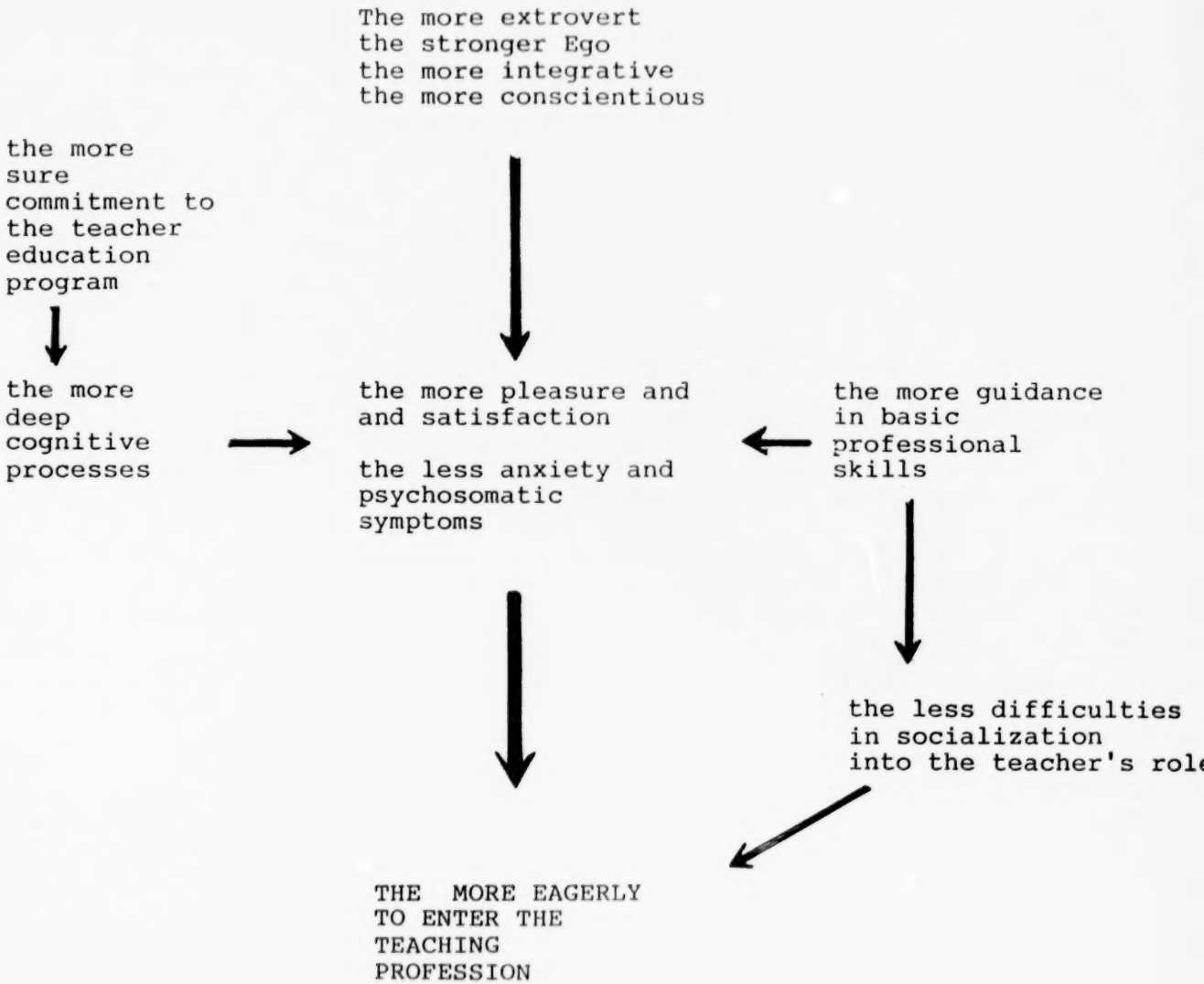
According to Burden (1986, p. 208) "information on teacher career development could be used to improve preservice teacher education programs by (a) serving as the basis for revising instructional content and learning experiences to better meet preservice teachers' developmental needs and to promote further growth; and (b) providing preservice teachers with information on how teachers change throughout their careers."

IV Connections with the willingness to take a teaching job

How eagerly students become teachers after their graduation is linked to many variables. The most important relations exist with how emotionally positive students have experienced their education. Strong connection also can be found with difficulties in socialization into the teacher' s role. Connections also exist with cognitive processes as earlier mentioned.

5. The cognitive-affective model of student teachers' professional development

There are many interconnections between variables. They show many important aspects of students' experiences during education. The main results can be summarized by the following model:


The more extrovert
the stronger Ego
the more integrative
the more conscientious
the more sure commitment to the teacher education program
the more deep cognitive processes
the more pleasure and and satisfaction
the less anxiety and psychosomatic symptoms
the more guidance in basic professional skills
the less difficulties in socialization into the teacher's role
THE MORE EAGERLY TO ENTER THE TEACHING PROFESSION

This cognitive-affective model of student teachers' professional development shows that teacher education is a process which concerns student teacher's whole personality. As we can reflect on what aspects are essential in pupils' meaningful learning we can also analyze which factors might make teacher

education a more meaningful process from the point of view of student teachers.

If we suppose that students' emotionally positive experiences and willingness to become a teacher after teacher education indicates that the process has been meaningful, we can seek for what could be preconditions for meaningfulness. These factors seem to be: personality qualities which create a basis for interaction processes at school (Extroversion and High Ego strength), high level cognitive processes, sufficient guiding in basic professional skills and support which makes it easier to grow into a teacher's role. These will point to the direction in which teacher education should be develop.

6. Conclusions and implications for teacher education

The project's aim is to create the grounds for research-based teacher education. The important factor is that teacher education is considered to be a professional developmental process in which acquiring information, personal development and teaching skills are combined. As a conclusion, from empirical results the following implication for secondary school teacher education will be presented:

(1) Paying attention to personality qualities and professional commitment of secondary school teachers

Alan Tom characterize teaching as being "a socially constructed process occuring in a socially constructued institution" (Tom 1984, p. 208). Teaching as a social process is a reality also in secondary school. Human relations have a very essential role during lessons but also outside the classroom. It is not enough that a teacher is an expert in his subject matter. He must also have qualities which indicate that he likes to be with human beings and he has the self-esteem and self-confidence to do his duty also as an educator. Personality traits extroversion and high ego strength were important conditions in this research for the emotional experience felt during teacher education. This may point to the fact that this kind of a student has had good qualities for the teaching processes experienced during the practicing period. But also they can reflect the fact that he or she has had a capacity e.g. to receive feedback and to be evaluated, which are important factors in professional development.

The high level cognitive processes had a very clear connection to the willingness to take a teaching job. If students had high level cognitive processes, they also wanted to be a teacher after graduation. Of course the relation is reciprocal. If students are very commited to the teaching profession, they also can gain more for themselves from their studies. Students who have no commitment to the teaching profession remain on a superficial level in their studies.

This means that it is important to pay attention to personal qualities and professional commitment when selecting new students for the teacher education program.

(2)Making student teachers' cognitive processes meaningful

Cognitive processes which include chances to apply new information and which have connections with reality are appreciated among secondary student teachers. If students can understand the meaning of educational knowledge their experiences of teacher education is positive and they want to work as teachers after graduation. All the different elements of teacher education should attempt to create the possibilities to arrange deep and meaningful learning experiences for students. Benham (1979) and Zeichner (1987, p. 573) have argued that if the purpose is to enhance the reflective capabilities of teachers an emphasis on reflective thinking needs to be incorporated into every aspect of a teacher education program from beginning to end. If students are wanted to became moral craft individuals their education should also focus on reflective thinking. This means that all teacher educators should aim at applying methods by which students could become conscious of the importance of reflecting on what purpose education ought to serve, and the need to remember the limitations of current knowledge (Tom 1984, p.144).

Students cognitive processes had a clear connection with professional commitment. By directing student teachers into high level cognitive processes it is also possible to strengthen professional commitment, and by supporting professional identity it is possible to help students to get more from their studies.

(3) Supporting the growth into the teachers's role

The role of secondary school teachers is controversial. On the one hand it requires high level academic skills, on the other hand it requires many kinds of social abilities. The professional tasks demanded from secondary school teacher form a wide spectrum. Many of these tasks are linked with the ordinary instructional process, but there are also many duties which require more than basic teaching skills. There are situations which force the teacher to seek ways to help pupils with their difficulties, to contact parents ans so on. The young teacher needs self-confidence in the basic skills. The feeling of management makes students feel satisfied. But how can they be taught those very difficult professional tasks which belong to every secondary school teachers schoolday, and which are often rejected even by prospective teachers. They cause ambivalent feelings in students. Teacher educators should be aware of the developmental stage -theories. They ought to see that developing into a teacher is a longitudinal process. But also they must not be silent about those difficult tasks secondary school teachers have. They have to give the realistic view of teachers' work but also to help students to seek their own role using a reflective approach. The teacher educator should see how important the emotional climate is. By helping the socialization process into a teacher's role students' anxiety can diminish and by tutoring students in an emotional atmosphere in which encouragement and enthusiasm is typical, the role of a secondary teacher can become more challenging and less frightening.

If teacher educators begin to understand what happens to student teachers during their education, what their cognitive processes are concerning the teaching profession and teachers' tasks and what students' emotional needs and problems during education are, it may help to evolve methods and materials for a teacher education curriculum. If we want pupils at school to develope in a morally and ethically high level environment, then teachers in teacher education should also learn to know what these principles mean in practice. That is the responsibility of teacher-educators.

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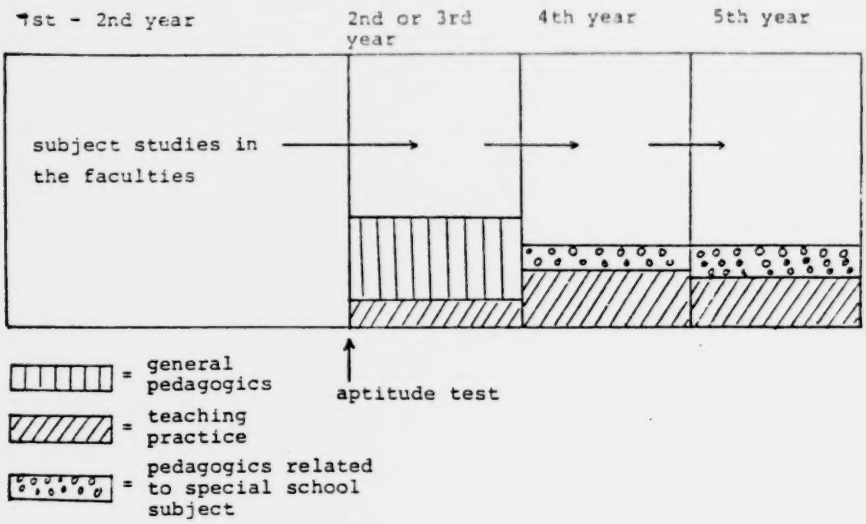
The structure of the secondary school teacher education at the University of Helsinki (Niemi, 1985, 73-74)



The educational studies of the secondary school teachers consists of following studyblocks at the University of Helsinki.

Educational studies of secondary school teachers

	hours lessons	hours groupwork	credit units
1. General pedagogics			
- preliminary examination			0,5
- philosophical foundations	22		2
- psychology	32	6	3
- special psychology	16		1
- teaching-learning process	22	14	2
- educational research methods	30		2
- school administration	10		1
- final examination			0,5
			12

1) One credit unit refers to the input of work required to complete a certain block of studies, and it may include lectures, exercises, independent reading etc.

2. Pedagogics related to school subjects	hours lessons	hours groupwork	credit units
(students divided into groups according to their subjects)			
- lessons concerning teaching methods, teaching learning processes and the newest research results in the students' own teaching subjects	20	20	2
- planning exercises: how to plan teaching in special subjects taking into consideration pupils' all-around development and the newest educational technology		20	1
- evaluation exercises: how to evaluate pupils' levels and progress and teaching-learning processes		20	1
- research seminar related to pedagogy of the subject: participants do scientific reseach concerning the problems of their own teaching subject			
		56	5/9

3. Teaching practice	hours lessons	hours groupwork	credit units
1. The initial practice			4
- microteaching groups			
- observing school life and lessons			
2. The basic practice			8
a. practising various teaching methods in practice schools of the university for ten weeks and			
b. practising in an ordinary school as a teacher for one month			
3. final practice			7
- for twelve weeks in the practice schools of the university			
- students' teaching skills are evaluated for an examination re-report (for qualification)			
			19

The mean values and standard deviations for Figure 3.

APPENDIX 2

	general pedagogy	pedagogics related to school subjects	teaching practice
	X (s)	X (s)	X (s)
1.	2.36 (0.83)	2.92 (0.94)	4.16 (0.91)
2.	2.03 (0.91)	2.44 (0.89)	3.40 (0.83)
3.	2.32 (0.93)	2.84 (0.89)	3.41 (0.91)
4.	1.45 (0.76)	2.31 (1.05)	3.17 (3.17)
5.	2.24 (1.07)	2.75 (1.05)	3.28 (1.30)
6.	2.21 (1.02)	3.08 (1.05)	4.11 (0.90)
7.	2.33 (1.21)	2.84 (1.18)	3.91 (1.02)
8.	2.61 (1.04)	3.13 (1.04)	3.95 (0.95)
9.	2.51 (0.96)	2.26 (0.92)	2.42 (1.11)
10.	1.56 (0.82)	2.08 (0.97)	3.28 (1.21)
11.	2.01 (0.91)	2.25 (0.96)	2.88 (1.03)
12.	2.13 (1.14)	2.53 (1.14)	3.32 (1.24)
13.	2.64 (1.12)	2.57 (0.95)	2.83 (0.97)
14.	2.09 (0.79)	2.20 (0.85)	2.58 (1.06)
15.	1.91 (1.02)	2.51 (0.95)	2.93 (1.05)
16.	1.95 (1.04)	2.27 (0.99)	3.42 (1.16)
17.	2.07 (1.08)	2.43 (1.15)	3.08 (1.13)